



# Energy Pooling and Implications for the Unique Traits of the Human Life History Strategy

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Energy pooling and implications for the unique traits of the human life history strategy  
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**Abstract:**

Compared to non-human primates, human life history is characterized by slow juvenile growth, late age at maturity, short interbirth intervals, and a decoupling of reproductive senescence and somatic senescence. Some of these traits represent a delay of reproductive effort while others represent an acceleration. To address this puzzle, we propose that humans in all three stages of the life span, pre-reproductives, adults of reproductive age, and post-reproductives, all contribute to a “pooled energy budget” (PEB) that is primarily utilized by the reproductively active female to carry out the energetically expensive tasks of gestation and lactation. Adults contribute to the pooled energy budget by providing food and care to children, thus freeing up the mother to provide more resources to a gestating fetus or a nursing infant and to resume postpartum ovulation more quickly. Pre-reproductives also contribute to the PEB. Older children, through participating in childcare and subsistence activities, can provide resources to partially meet their own energetic needs and to care for and provision younger siblings. The mother becomes the “final common pathway” through which energy flows in order to produce new offspring. While life history theory has traditionally considered growth, maintenance, and reproduction as the three main categories of energetic tradeoffs, we propose that energy allocated towards reproduction can be broken into two categories: direct and indirect reproductive effort. The contributions to the PEB made by both pre-reproductives and post-reproductives can be seen as indirect reproductive effort and can provide an explanation for slow childhood growth rates and menopause.